

IN THE CLAIMS:

Claim 1 (Original) A method of preparing a polymer-carbon nanotube composite, the method comprising:

deinhibiting a monomer;

dispersing carbon nanotubes in the deinhibited monomer;

adding an initiator to the resulting dispersion;

polymerizing the monomer in the presence of the dispersed nanotubes to form a composite; and

dissolving the resulting composite in a solvent.

Claim 2 (Original) The method of claim 1, wherein the carbon nanotubes are selected from the group consisting of single wall and multi-wall nanotubes.

Claim 3 (Original) The method of claim 1, wherein the carbon nanotubes are pure single-walled carbon nanotubes.

Claim 4 (Original) The method of claim 1, wherein the monomer is a vinyl monomer.

Claim 5 (Original) The method of claim 1, wherein the monomer is methyl methacrylate.

Claim 6 (Original) The method of claim 5, further comprising the step of deinhibiting the monomer by removing the inhibitor in the methyl methacrylate monomer utilizing monoethyl ether hydroquinone inhibitor remover.

Claim 7 (Original) The method of claim 1, whereby dispersing the nanotubes is affected through sonication.

Claim 8 (Original) The method of claim 1, whereby the initiator creates free radicals to initiate the polymerizing step.

Claim 9 (Original) The method of claim 1, wherein the initiator is substantially transparent.

Claim 10 (Original) The method of claim 1, wherein the initiator is an  $\alpha$ ,  $\alpha$  dialkyl derivative of a hydroxyalkylphenone.

Claim 11 (Original) The method of claim 1, wherein the initiator is 1-phenyl-2-hydroxy-2-methyl-1 propanone.

Claim 12 (Original) The method of claim 1, wherein adding the initiator further comprises bubbling nitrogen gas through the dispersion.

Claim 13 (Original) The method of claim 1, wherein polymerizing is achieved utilizing a method selected from the group consisting of ultraviolet light, thermal heating, and ionizing gamma radiation.

Claim 14 (Original) The method of claim 1, where the solvent is methylene chloride.

Claim 15 (Original) The method of claim 14, whereby a 5% solution was prepared by dissolving the composite in methylene chloride.

Claim 16 (Original) The method of claim 1, further comprising the step of filtering the solvent prior to the dissolving step.

Claim 17 (Original) The method of claim 1, further comprising post-curing the composite prior to the dissolving step.

Claim 18 (Original) The method of claim 1, further comprising isolating the nanocomposite by removal of the solvent after the dissolving step.

Claim 19 (Original) A method of preparing a polymer-carbon nanotube composite, the method comprising:

deinhibiting a methyl methacrylate monomer;

placing single-wall carbon nanotubes into the deinhibited monomer, forming a nanotube mixture; sonicating the nanotube mixture for a duration sufficient to disperse the nanotubes in the monomer;

placing the dispersed mixture into a reaction vessel;  
adding a 1-phenyl-2-hydroxy-2-methyl-1 propanone initiator to the reaction vessel;  
bubbling nitrogen gas through the mixture for a duration sufficient to allow for a nitrogen environment in the mixture;  
polymerizing the monomer in the presence of the dispersed nanotubes to produce a composite;  
and  
dissolving the resulting composite in methylene chloride.

Claim 20 (Original) The method of claim 19, whereby a monomethyl ether hydroquinone inhibitor is removed from the methyl methacrylate monomer to deinhibit the monomer.

Claim 21 (Original) The method of claim 19, where the single-walled carbon nanotubes are 0.26% pure single-walled carbon nanotubes.

Claim 22 (Original) The method of claim 19 wherein polymerizing is achieved utilizing a method selected from the group consisting of ultraviolet light, thermal heating, and gamma radiation

Claim 23 (Currently Amended) A substantially optically transparent polymer carbon nanotube composite comprising a plurality of carbon nanotubes dispersed throughout an ultraviolet light polymerized polymer produced according to the process of claim 1.

Claim 24 (Currently Amended) A substantially optically transparent polymer carbon nanotube composite comprising a plurality of carbon nanotubes dispersed throughout a thermal heat polymerized polymer produced according to the process of claim 19.

Claim 25 (New) A substantially optically transparent polymer carbon nanotube composite comprising a plurality of carbon nanotubes dispersed throughout a gamma radiation polymerized polymer.